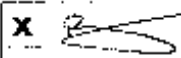
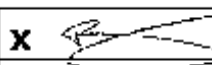
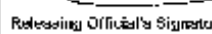
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Principal Author's Organization: MCCDC OAD Complete mailing address: 3300 Russell Road Quantico, VA 22134		Principal Author's Signature:  Phone: (703) 784-6019 FAX: (703) 784-3547 Email: robin.marling@usn.mil
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USMC Irregular Warfare Project & Colombia Scenario Application

**LT Robin Marling, USN
Ms. Patricia Rossmaier
Dr. Robert Sheldon**

**Operations Analysis Division (OAD)
Marine Corps Combat Development Command (MCCDC)**

**76th MORSS
WG-16**



Purpose

Present Overview of MCCDC OAD
Irregular Warfare (IW) Project,
IW Conceptual Model, and
Application in an IW Scenario



Agenda

- **OAD IW Project Background & Team**
- **IW Conceptual Model**
- **Pythagoras Agent-Based Model**
- **IW Scenario**
- **Data Development**
- **Analysis results**
- **OAD IW Project Current Efforts**



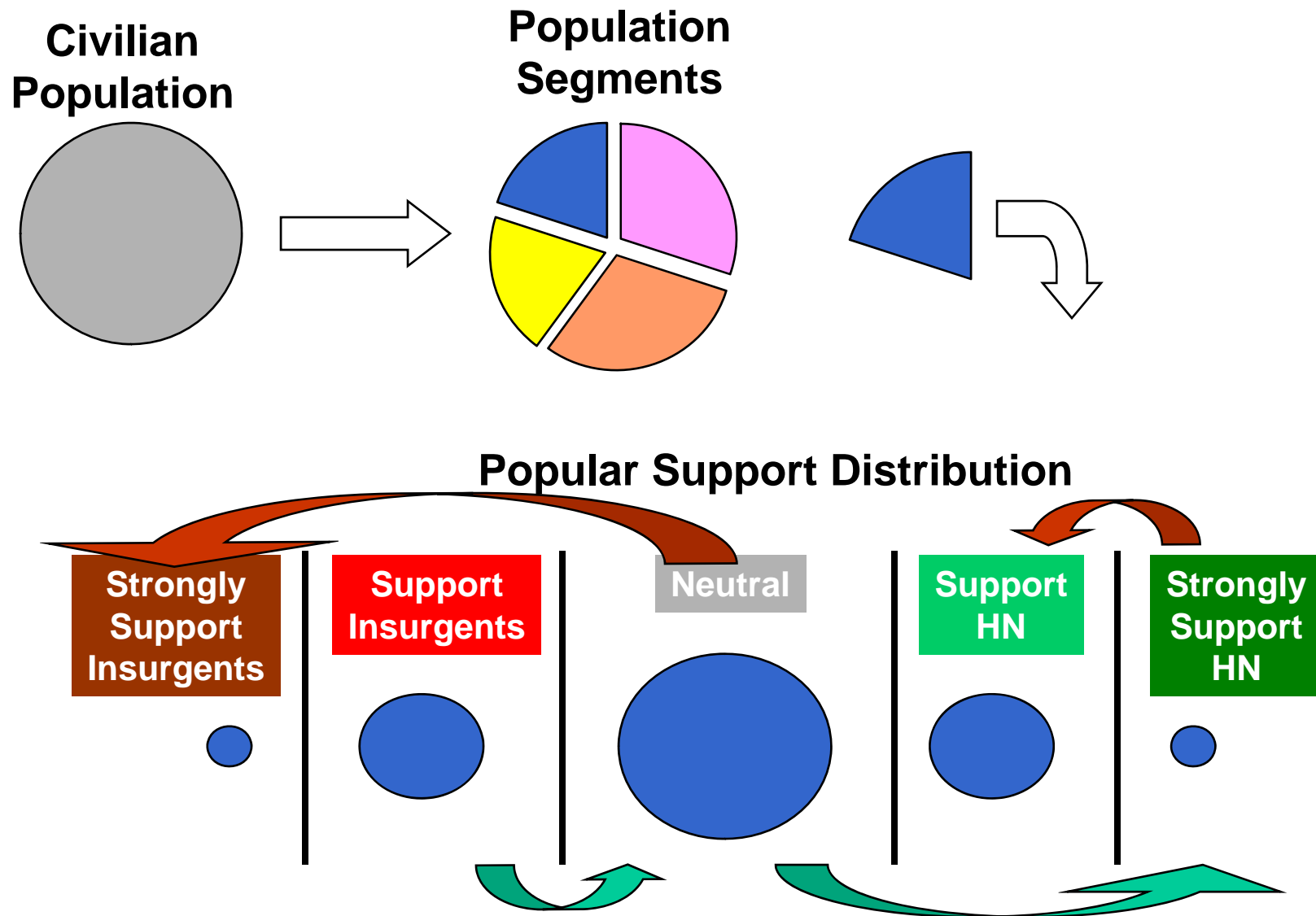
OAD IW Project Background and Team

- **April 2006 - IW Project Initiated**
 - Goal: Develop a prototype methodology for analyzing a USMC IW problem in-house
 - Problem definition and conceptual model development
- **Dec 2006 - FM3-24 COIN Manual Published**
 - Population is center of gravity - understand the human terrain
 - Consistent with OAD conceptual model
- **March 2007 - Real-World Scenario Development**
 - Colombia HA/DR scenario
- **May 2007 - Data Elicitation Techniques Explored**
- **OAD IW Team:**
 - Steve Stephens
 - LT Robin Marling
 - Dr. Bob Sheldon
 - John Lawson
 - Rick Clinger
 - Patricia Rosσμαier



IW Conceptual Model

Individual Population Segments





IW Conceptual Model

Popular Support Transition Matrices

	Strongly Support Insurgents	Support Insurgents	Neutral	Support HN Gov	Strongly Support HN Gov
Strongly Support Insurgents	99.4%	0.3%	0.3%	0.0%	0.0%
Support Insurgents	0.1%				
Neutral	0.0%				
Support HN Gov	0.0%				
Strongly Support HN Gov	0.0%				

	Strongly Support Insurgents	Support Insurgents	Neutral	Support HN Gov	Strongly Support HN Gov
Strongly Support Insurgents	99.4%	0.3%	0.3%	0.0%	0.0%
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	Strongly Support Insurgents	Support Insurgents	Neutral	Support HN Gov	Strongly Support HN Gov
Strongly Support Insurgents	99.4%	0.3%	0.3%	0.0%	0.0%
Support Insurgents	0.1%	98.0%	1.3%	0.5%	0.0%
Neutral	0.0%	0.4%	99.1%	0.5%	0.0%
Support HN Gov	0.0%	0.0%	1.2%	98.5%	0.3%
Strongly Support HN Gov	0.0%	0.0%	0.1%	0.1%	99.8%

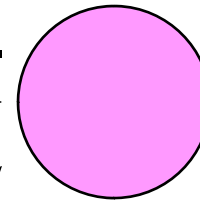
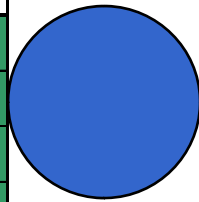
Transition Matrix Developed for each Population Segment Independently



IW Conceptual Model

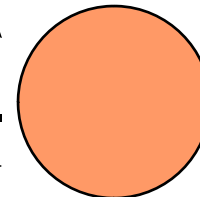
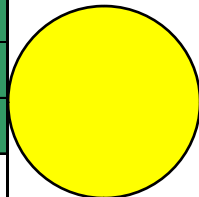
Population Segment Influence

	Strongly Support Insurgents	Support Insurgents	Neutral	Support HN Gov	Strongly Support HN Gov
Strongly Support Insurgents	99.4%	0.3%	0.3%	0.0%	0.0%
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Neutral	0.0%	0.4%	99.1%	0.5%	0.0%
Support HN Gov	0.0%	0.0%	1.2%	98.5%	0.3%
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Strongly Support HN Gov	0.0%	0.0%	0.1%	0.1%	99.8%

Transition Matrix Updated Given Influence by Other Population Segments



IW Conceptual Model

Key Data Requirements

1. Population Segment Definitions

For each Population Segment:

- 2. Initial Popular Support Distribution**
- 3. Popular Support Transition Matrix independent of other segments**
- 4. Relative Magnitude and “Direction” of Influence on each other segment**



IW Conceptual Model Instantiation

Pythagoras

- **Agent-Based Model**
- **Model Combat Environment**
 - Leadership
 - Human Factors
 - Physics
- **2001 Version 1.0 - part of Project Albert**
- **2002-2008 Users:**
 - MCWL, MCCDC, SOCOM, NPS, TRAC-Monterey, others



IW Scenario

Colombia HA/DR

- Tsunami strikes Buenaventura, Colombia
- MAGTF Mission:
 - Refugee Camp Security
 - Humanitarian Assist & Disaster Relief
- Revolutionary Armed Forces of Colombia (FARC) insurgency



Study Question:

Which is the Better Course of Action - Sea-Based or Shore-Based MAGTF?



IW Scenario

Colombia Population Segments

- Illicit Organizations
- Catholic Church
- Police
- Military
- Displaced Persons
- Urban Poor
- Urban Middle Class
- Old Money



***Eight Major Population Segments
Identified by Subject Matter Experts***

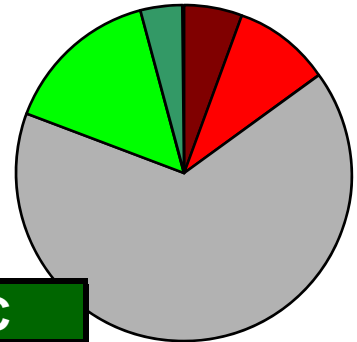


IW Scenario

Popular Support Data Development

- Initial Distribution**

SME - “How do the actions of this population segment support the insurgency (FARC) or the Government of Colombia (GoC)?”

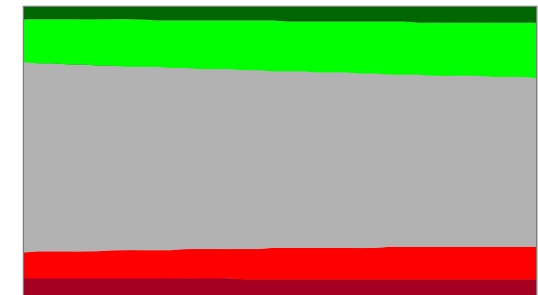


Urban Poor	FARC	Pro-FARC	Neutral	Pro-GoC	GoC
	5.8%	9.2%	65.7%	15.1%	4.2%

- Transition Matrix**

SME - “Given no external influences, over time, how would the actions of this population segment change to support the FARC or the GoC?”

	Strongly Support Insurgents	Support Insurgents	Neutral	Support HN Gov	Strongly Support HN Gov
Strongly Support Insurgents	99.4%	0.3%	0.3%	0.0%	0.0%
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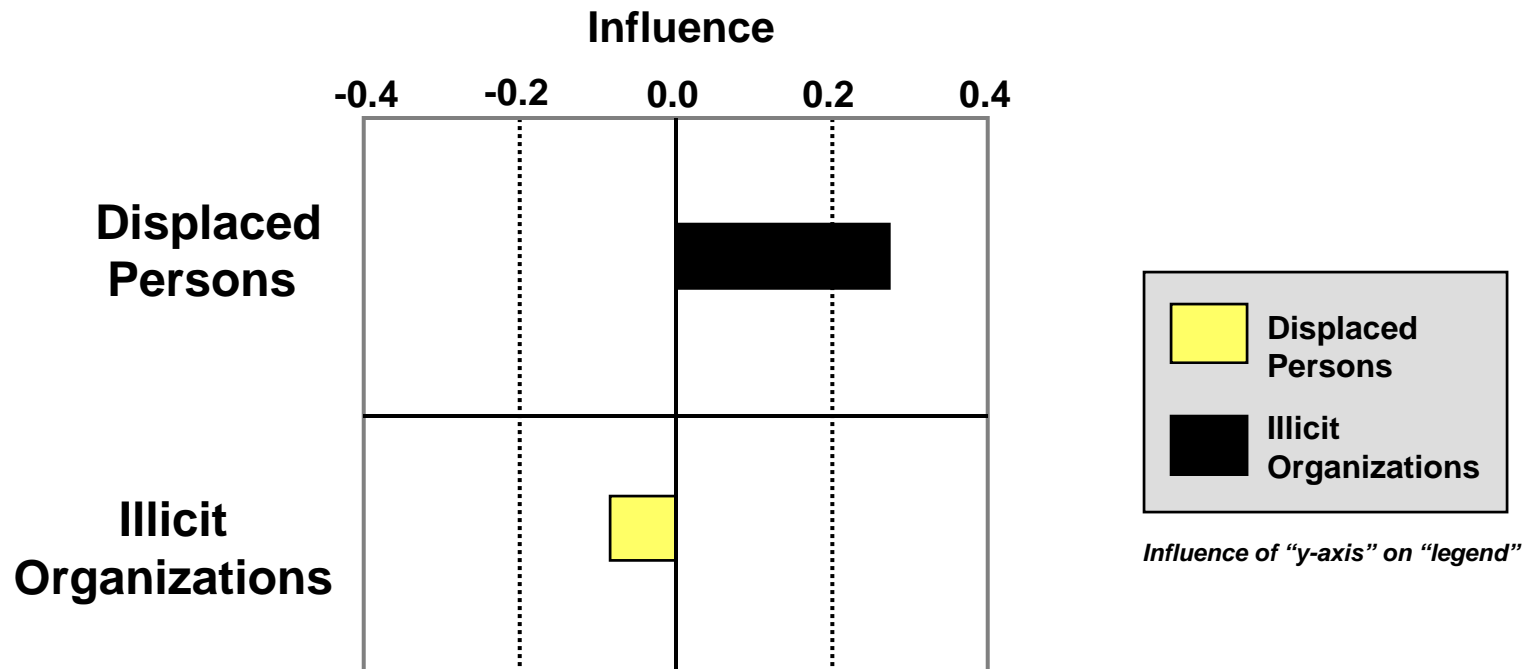


Time



IW Scenario

Population Segment Influence



***“Semantic Differential”
Data Elicitation Approach Utilized***